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## Factor affecting the use of e-money in millennial generation: Research model UTAUT 2

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### Abstract

This study aims to determine the factors that influence users in using electronic money in transactions. The Unified Theory of Acceptance and Use of Technology (UTAUT) is used as a research model with independent variables: performance expectations, facility conditions, social influence, expectations, perceived values, habits, beliefs, and hedonic motivation. The dependent variable in this study is actual use and interest to be used as a mediator variable. This research method uses an online survey method that is distributed using Google Surveys. This study's sample was 194 electronic money users spread across three major cities in Indonesia, such as DKI Jakarta, West Java, and Central Java. Primary data collected were analyzed using SmartPLS software. The study results explain that trust is a substantial factor in influencing the use of electronic money. Companies, in this case, must pay attention to system security factors to be able to attract millennials using electronic money.

**Keywords:** Actual users; electronic money; millennial generation; UTAUT; UTAUT2.

**JEL Classification:** M41, M42

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### INTRODUCTION

E-Money (electronic money) is the latest financial innovation for payment transactions in Indonesia. Electronic money was introduced in 2007 and classified into two types, chip-based and server-based (Papadopoulos, 2011). At present, there are 41 e-money service companies registered with Bank Indonesia. Twenty-nine of them are server-based, and 12 are chip-based. Technological innovations make business transactions easier and impact business activities (Stewart, 2011). According to data from Bank Indonesia (2019), the growth of e-money transactions 2015-2019 in Indonesia is around 70% per year. This data explains that the share of the e-money market will continue to increase and become an attractive opportunity for fintech companies such as Go pay, OVO, and Shopee Pay.

The most substantial reasons for the growth of e-money are fast, practicality, and free transaction fees when transacting are the advantages of e-money (Tee & Ong, 2016). The benefits of e-money encourage millennials to create the most "literate" of technology to use non-cash transactions. In the last decade, creating millennials is the generation with the most significant payment service users (Fadillah, 2018). The millennial generation is currently the largest population with high purchasing power, so the industry should make them a target market.

Even though technology can offer attractive benefits to users and companies, the online environment is far from perfect. Trust is the primary concern for the millennial generation in digital transactions associated with personal and financial data (Purwanto et al., 2020). According to Iliyin (2020), security is individual confidence in using technology on the risk of loss of personal data, low risk of theft, and user privacy information can be guaranteed and not leaked to third parties. Research by Utami, S., & Kusmawati (2017) reveals that perceptions of security affect interest using e-money; in other words, trust is a determining factor in using e-money. Therefore, Companies and Stakeholders, in this case, need to work together to improve security to create a comfortable business environment and public trusted.

Several researchers have examined the trust factor in using electronic payments (see. Chauhan, 2015; Tello et al., 2018). Trust and social factors are predictors in influencing someone to use e-money (Tello et al., 2018). Trust is an essential factor in improving one's behavior in using technology. The theory of Unified Theory of Acceptance and Use of Technology (UTAUT) is a theory in measuring a person's behavior in using technology developed by (Venkatesh et al., 2012). Some empirical research related to the behavior of using electronic money in creating millennials is still minimal. Therefore, this study excludes technology acceptance factors Venkatesh et al. (2012) and trust in the use of electronic money.

Venkatesh et al. (2003) developed UTAUT by combining eight theories that explain the factors that influence technology acceptance. These theories include the theory of reasoned action, technology acceptance models, motivation models, theory of planned behavior, models of PC utilization, combined TAM and TPB, innovation diffusion theory, and social cognitive theory. Venkatesh et al. (2003) combine previous technology acceptance models and introduce four concepts, namely performance expectations (PE), facilitating conditions (FC), social influence (SI), and business expectations (EE) (Venkatesh et al., 2012). These variables have received the attention of many researchers and are widely used in exploring the acceptance of technology (i.e., Raza et al., 2019; Williams et al., 2015; Ye et al., 2020).

Performance expectations are individuals who use technology will benefit from increased performance (Venkatesh et al., 2012). Users get benefits as a relative advantage, where these benefits will reflect the level of efficiency and performance when using technology (Alwahaishi & Snášel, 2013). The perceived benefits can also be described as the level of trust to use technology that will improve job performance. (Venkatesh et al., 2012) explained that performance expectations become better factors for predicting consumers in technology acceptance and influencing technology use behavior. This variable is interpreted as extrinsic motivation, work suitability, and outcome expectations

(Yu, 2012). Users will intend to use it because they are satisfied with the technology's benefits (Venkatesh et al., 2012).

Venkatesh et al. (2012) explain the construct of performance expectations as the result of eight models' development. Venkatesh concludes with four constructs that are suitable for use in the technology acceptance model. These constructs are perceived benefits, relative advantages, expected results, and extrinsic motivation.

Effort expectancy is the convenience associated with the use of technology by consumers (Venkatesh et al., 2012). The business expectation variable is the result of the development of three models, such as perceived ease of use (TAM / TAM2), complexity (MPCU), and ease of use (IDT). In the context of electronic money, this variable explains that users will find it easy to operate or use new technology (Widayat et al., 2020). Baptista & Oliveira (2015) demonstrate that ease of using technology increases individual adaptation levels from conventional technology to new technology.

(Baptista & Oliveira, 2015) explain that social influence is the way users think and perceive people who influence it in using technology. In electronic money, the perception of the social environment is family, friends, and influential people in using electronic money. Khatimah & Halim (2014) explain that the social environment significantly influences individuals to use electronic money. Social influences have also been shown to influence behavioral intention to use technology (Casey & Wilson-Evered, 2012;). Several empirical studies of social influence in the acceptance of information technology have received strong support from user behavior (Vanduhe et al., 2020; Wu & Chen, 2017). Social Influence is seen as how friends, colleagues, or family members influence users to use electronic money. Likewise, when users observe that their colleagues are using electronic money and feel the benefits of using it, they are motivated to use electronic money. Thus, this factor plays a major role in encouraging user attitude to use technology (Vanduhe et al., 2020).

Facilitating conditions indicate that the user has the resources and expertise needed to use technology (Tarhini et al., 2015). These variables are a determinant to increase perceptions in carrying out tasks (Cheng et al., 2015). To adopt electronic money, an individual needs skills, a smartphone device, an internet connection, and security. The better the facilities available to users, the higher the individual's desire to receive technology (Baptista & Oliveira, 2015). Khatimah & Halim (2014) explain that facilities have a significant influence on the use of electronic money. The facilitating conditions can be concluded to shape the customer's intention to adopt electronic money significantly. In her research, Nisha (2016) explains that the facilitating conditions affect the user's intention to use it.

Hedonic motivation is a feeling or emotion that is stimulated by the use of technology (Venkatesh et al., 2012). In the context of technology, this motivation is the happiness or pleasure of individuals obtained by using technology. Users will feel happy when using new technology. Venkatesh et al. (2012) also concluded that there was a direct relationship between hedonic motivation and individual intention to use technology. The higher the intensity of use, the more individuals will enjoy the better the chance of technology acceptance by the client (Zhang et al., 2012). Hedonic motivation is a predictor variable and significantly influences the user attitude to use new technology (Balouchi et al., 2017; Etemad-Sajadi, 2014; Pantano & Corvello, 2014).

Venkatesh et al. (2012) explain that perceived value is a tradeoff between monetary benefits and costs inherent in technology use. Prices inherent to the use of technology include internet fees, banking service fees, and transaction fees. The benefits to be gained by users must be greater than the monetary costs incurred in using technology (Baptista & Oliveira, 2015).

(Cruz et al., 2010) identified perceived risks and costs of accessing the internet as two main factors that influence an individual's intention to use electronic money. (Ho & Ko, 2008) examine the factors that cause the use of the internet on an ongoing basis; the result is the user feels the benefits obtained from the customer's intention to use it. (Yang, 2009) explains that lower-cost services have a positive influence on the use of technology. (Goh et al., 2014) also explains that the more benefits customers receive from a system, the more likely it is that users will adopt new technologies

Trust is an essential determinant in assessing users' acceptance in the acceptance of new technology (Kamal et al., 2020; Sharma & Sharma, 2019). It is defined as an individual's assessment or expectation of something given usability, reliability, and technology functionality (Mcknight et al., 2011). Najib & Fahma (2020) argued that trust in technology has a significant effect on technology acceptance. E-money merchants such as banks and others need to build trust among users (Najib & Fahma, 2020).

Behavioral intention is the desire of individuals to adopt new technologies (Tsai, 2012). The intention to use technology is to measure the intensity of a person's intention to buy a product (Fishbein & Ajzen, 2011). Several factors used to describe intention to use technology, such as perceived usefulness, perceived ease of use, perceived risk, social influence, price, trust, and the like, have been applied to measure behavioral intention towards technology adoption (Lim et al., 2019). Many researchers consider behavioral intention as an essential factor in determining technology acceptance (Teo, 2011). Behavioral intention plays a significant role in technology adoption studies (Raza & Hanif, 2013).

Venkatesh et al. (2003) review and synthesize eight theories or models of technology use into the single Unified Theory of Acceptance and Use of Technology (UTAUT) model. The UTAUT model was developed to measure the level of customer expectations, business expectations, environmental influences, and the condition of technological facilities. Venkatesh et al. (2012) added three predictor variables: price value, hedonic motivation, and habits, in the UTAUT2 model. Trust is a matter of the millennial generation using e-money. Therefore, this study extends the model by adding trust variables to the UTAUT 2 model. Trust variables are adopted from the theory of trust (Mayer et al., 1995; Mcknight et al., 2011)

Based on the research issues, this study provides three contributions to the world of business and science development. First, an analysis of the factors that influence the use of e-money in Indonesia with the UTAUT model is limited research. Previous research has focused on server and chip-based e-money services. The scope of this research will cover server-based electronic money services. The content of this research has the reason that researchers want to obtain specific information quality. Because the scope is too broad, it will provide information bias and impact the quality of information produced. The information generated will provide benefits to electronic money service companies to know the behavior of their consumer.

Second, this study explains the factors that influence the use of electronic money by the millennial generation. The millennial generation is a vast market potential for e-money service companies. However, awareness and intensity of the use of electronic money by the millennial generation are still relatively low when compared to other financial products. Therefore, this research will identify the factors that influence the use of electronic money. Third, based on a theoretical perspective, this research is an empirical test of UTAUT modification theory development by incorporating the construct of trust. This constitution is limited to previous e-money usage studies. Security in online transactions is an essential factor in building trust and convenience in electronic money transactions.

This study adopted the development of the theory UTAUT 2. This model was developed by (Venkatesh et al., 2012) to measure the extent of technology acceptance from consumers. In this model, the factors that will be measured are consumer expectations, business expectations, social influence, how conditions facilitate use, hedonic motivation, user habits, and trust in using e-money. This model is used to identify the factors that influence the use of electronic money in Indonesia.

## METHOD

This study uses a quantitative approach; the method aims to describe a phenomenon that occurs (Cooper & Schindler, 2014). The theoretical foundation of the quantitative method has used a guide; the research focuses on the facts in the field. The theoretical foundation is also helpful in providing a general description of the research background and a material discussion of research results (Cooper & Schindler, 2014). This study aims to identify the factors that influence the use of technology. Therefore, the quantitative method is very appropriate to be used in this study. This quantitative method will be used at the data collection and analysis stage.

The population in this study is the millennial.<sup>1</sup> Generation with electronic money such as GOPAY, TCASH, OVO, XL Cash, Pay Pro, Mandiri E-Cash, and Sakuku. The purposive sampling approach is considered to be the most appropriate sampling method for this study, considering that this technique allows researchers to obtain accurate and reliable information. This technique also allows researchers to select respondents who have experience using e-money.

The construct validity and reliability measured can be confirmed to establish that the theory is by the sample data. The reflective model is used to measure construct-related parameters. The PLS algorithm is calculated to test measures including composite reliability to assess internal consistency reliability, indicator reliability, convergent validity, AVE, and discriminant validity (Hair et al., 2014) (See Table 1).

Based on internal consistency reliability, composite reliability values must be greater than 0.708 to be accepted. Convergent validity is defined as the degree of positive correlation between alternative measures of a construct. Reflective construct indicators

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<sup>1</sup> There is no clear consensus about the bounds of the millennial generation: 1979–1994 (Myers & Sadaghiani, 2010), 1982–2000 (Oblinger, 2003), or 1982–2005 (Howe & Strauss, 2009). For our study, the interval taken into consideration was 1980–2000 (Gurău, 2012; Mittendorf et al., 2019); consequently, we focused on consumers aged between 19 and 39 years old at the time of the survey (2019).

show that AVE must be greater than 0.50 or higher to show the construct's ability to explain more than half the hand's variation. Table 1 also presents figures of internal reliability that are higher than 0.7 for all latent variables measured. The AVE value as an evaluation criterion is used to assess convergent validity. The construct value registered with AVE is above 0.50.

Using the PLS algorithm in evaluating the chosen reflective measurement model, the level of internal reliability is greater than 0.708. Reflective construct indicators show that AVE is higher than 0.50; the data explains that the parameters in this study are above the recommended threshold. Thus, it can be concluded that the theory matches the sample data that confirms the validity and reliability of the construct being measured. Based on the results of the PLS model measurements in Table 1, the empirical model tested in this study has fulfilled the validity and reliability test criteria.

**Table 1**  
**Construct Reliability dan Validity**

	<b>Cronbach's Alpha**</b>	<b>Rho_A</b>	<b>R<sup>2</sup></b>	<b>Composite reliability**</b>	<b>Average Variance Extracted*</b>
<b>Performance Expectancy</b>	0.84	0.78		0.88	0.64
<b>Effort Expectancy</b>	0.92	0.96		0.95	0.86
<b>Social Influence</b>	0.83	0.83		0.90	0.75
<b>Facilitating Conditions</b>	0.60	0.66		0.79	0.56
<b>Hedonic Motivation</b>	0.90	0.91		0.94	0.84
<b>Price Value</b>	0.85	0.88		0.93	0.87
<b>Habit</b>	0.11	0.36		0.60	0.51
<b>Trust</b>	0.87	0.85		0.91	0.76
<b>Behavioral Intention</b>	0.95	0.95	0.39	0.97	0.95
<b>Usage Behavioral</b>	0.95	0.95	0.58	0.96	0.91

Source: Data Process (2020)

Note: \*Valid if AVE > 0.5

\*\* Reliabel if Composite Reliability or Cronbach's alpha > 0.6

Evaluation of the model structure involves two factors, namely path loading, and  $R^2$  or adjust  $R^2$ . The loading path indicates the strength of the relationship between the independent and dependent variables, while the value of  $R^2$  measures the predictive power of the model structure. In data analysis, the value of  $R^2$  can be interpreted as a description of the number of variants explained by exogenous variables. Researchers calculate path loading and t-statistics using bootstrapping techniques. The determinant coefficient ( $R^2$ ) describes the accuracy of the construct prediction in the structural model. Explanation of the value of  $R^2$  starts from substantial, moderate, and weak if each value is at 0.75, 0.50, or 0.25. The model in this study shows an average level of accuracy, where the value of  $R^2$  behavioral intention is 0.39, and the value of behavioral usage is 0.58. The results can be seen in Table 1.

## RESULTS AND DISCUSSION

### Results

This study uses primary data types, and sources obtained directly from the research object in questionnaires. Data collection in this study was carried out by distributing questionnaires online to all respondents during June-August 2019. During the three months of data collection, the total questionnaires filled out and returned were 203. This number represented the respondent level of 97 percent. Only 194 respondents were declared valid for statistical analysis (See Table 2).

**Table 2**  
**Respondent Characteristics**

Variable	Category	Frequency	Percentage (%)
Gender	Man	63	43
	Women	84	57
Age	20-24	101	51
	25-29	64	32
	30-34	19	10
	35-40	13	7
	Student	83	56
Profession	Civil Servant / Private	29	19
	Freelancer	7	5
	Entrepreneur	25	17
	Housewife	3	2
	0-1 Years	79	54
Experience Using Electronic Money	1-2 Years	47	32
	2-3 Years	12	8
	4-5 Years	7	5
	Above 5 Years	1	1

Source: (Data Process, 2020)

In this study, the path coefficient with a probability level of 10 percent was considered statistically significant. As already shown in the structural model, the path coefficient represents the hypothesized relationship between latent variables. The analysis results for the level of significance of the path model structural path coefficients as presented in Table 3 show that the variables of performance expectations, hedonic motivation, and money value do not have a positive correlation with behavioral intention behavioral usage variables. The trust variable does not positively correlate with the behavioral intention variable but positively correlates with the behavioral usage variable. Meanwhile, other variables support the relationship to the technology acceptance construct model (UTAUT 2).

**Table 3**  
**Result of Partial Least Square (PLS) Structural Model Method**

	Original Sample	Sample Mean	Standard Deviation	T Statistic	P Values	Sig.
PE->BI	0.019	0.022	0.084	0.23	0.82	Not Support
PE->UB	0.015	0.017	0.66	0.23	0.82	Not Support
EE->BI	0.207	0.221	0.083	2.49	0.01	Support
EE->UB	0.162	0.173	0.067	2.43	0.01	Support
SI->BI	0.308	0.308	0.061	5.01	0.00	Support
SI->UB	0.242	0.241	0.050	4.82	0.00	Support
FC->BI	-0.139	-0.154	0.073	1.91	0.05	Support
FC->UB	-0.109	-0.121	0.058	1.88	0.06	Support
HM->BI	0.112	0.107	0.092	1.21	0.22	Not Support
HM->UB	0.088	0.083	0.072	1.22	0.22	Not Support
PV->BI	0.085	0.084	0.074	1.16	0.24	Not Support
PV->UB	0.067	0.066	0.058	1.15	0.25	Not Support
HT->BI	0.385	0.375	0.077	5.01	0.00	Support
HT->UB	0.253	0.250	0.081	3.12	0.00	Support
TR->BI	-0.022	-0.021	0.082	0.26	0.78	Not Support
TR->UB	0.222	0.223	0.091	2.43	0.01	Support
BI->UB	0.784	0.781	0.037	21.12	0.00	Support

Source: (Data Process, 2020)

## Discussion

Based on nine relationships with behavioral intention and behavioral usage, six relationships are positively correlated. This study's findings explain that Performance Expectancy, hedonic motivation, and price value variables are not determinants in e-money usage and acceptable behavior. Meanwhile, the trust variable only supports e-money usage behavior.

Applying the UTAUT model to mobile e-money applications has revealed insightful results. Habit is the strongest predictor of intention to use mobile e-money applications. This indicates the consumer's habitual nature of using an e-money mobile application. Findings are similar to the work of (Venkatesh et al., 2012). Facilitating condition is also a critical antecedent to predict usage of mobile applications for e-money. This exerts that consumers gain a feeling of pleasure using shopping apps through their functions and features. The results also highlighted social influence as a significant predictor. This suggests that respondents tend to get influenced by their peer group. The behavior of consumers is influenced mainly by the endorsement of family and friends. Findings indicate that users are influenced by the opinions, suggestions, and recommendations of essential others (such as friends and family members) who think that they should adopt mobile e-money.

The variable of performance expectations cannot support the relationship on the constructed model of technology acceptance. Some of the empirical research results



explain the same fact that the performance expectations variable does not affect technology acceptance (Barnes & Vidgen, 2009; Sambasivan et al., 2010). This fact explains that the company needs to improve the substance aspect, where customers will feel that the work will be accomplished quickly by using technology.

(Venkatesh et al., 2012) found hedonic motivation variables have a significant effect. The findings in this study hedonic motivation variables do not correlate with the behavior of interest and the use of technology. Notwithstanding the productive use of technologies, hedonic use of technologies started to gain prominences such as playing computer games, streaming music, and instant messaging (Hampton-Sosa, 2017).

## CONCLUSIONS

This study concludes that the main determinants of the adoption and use of electronic money services are business expectations, social influence, facilities, trust, and habits. Several construction models in other UTAUT 2, such as performance expectations, price values, and hedonic motivation, do not have a significant relationship in adopting technology acceptance. Electronic money companies need to expand features so they can touch all lines of customer activity. Several empirical studies explain that performance factors have a weak correlation with the interest and use of technology.

Technology companies are currently at the product development stage; this fact can explain that there is a need for further development to be able to attract customers using electronic money. On the other hand, companies must focus on building customer trust. The use of trusted third-party security certificates will encourage customers to be interested in using electronic money. An excellent technical analysis of procedures needs to be done by electronic money companies regularly to protect service users' data and information.

This study has several limitations on sample variations that are predominantly under the age of 20 years. Because this research deals with consumer behavior, future research can use moderating variables such as age, sex, experience using technology, and education level so that it can obtain more varied and comprehensive research results.

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